

CONTRIBUTIONS TO THE FLORA OF WESTERN  
AUSTRALIA, No. 3.

By CHARLES A. GARDNER, Forests Department, Perth.

(Read 8th May, 1923.)

My two earlier papers dealt only with plants which were new to science, but in the present paper I have begun a series of systematic notes, recording new localities, or adding information concerning the species dealt with, which to my knowledge has not previously been published. These notes commence with the *Gymnospermae*, omit the *Monocotyledoneae*, and start again with the *Casuarinaceae*.

It is intended in subsequent contributions to follow out this method, following Engler's system.

This paper also contains descriptions of three new species.

CONIFERAE.

*Callitris Roei*, Endl.

A small tree or shrub of 12 to 15 feet in height, densely branched with short horizontal spreading branches. Male amenta 4 mm. long, shortly cylindrical, brownish-yellow, terminating the short branchlets, the staminal scales in whorls of three, broadly ovate with a short, almost acute apex; anther-cells 2.

I collected this rare species from two localities, viz., six miles North of Bluff Knoll, Stirling Range, in gravelly soil on rising ground in thickets of mallee, and at Bendering, near Kondinin, in arid sandy soil on plains. The fruiting cones are densely clustered on the lateral branches, and are quite smooth before opening, the dorsal conical protuberance acute. The locality of Bendering extends the range of this species to a distance of over a hundred miles north of the previously recorded stations.

CASUARINACEAE.

*Casuarina Dorrienii*, Domin.

This species was collected near the summit of Warrungup Hill, Stirling Range. The whorls are 8-10-merous (Domin states 9-merous), and the cones are occasionally more cylindrical than figured in his description. It is a robust shrub of 6-10 feet with widely spreading branches. I consider this to be a form of *Casuarina Huegeliana*, but although the locality is exactly that of A. Smith-Dorrien, I have not seen Dr. Domin's specimens.

*Casuarina distyla*, Vent.

I again collected this species at Borden, and in Toll's Pass, Stirling Range. It attains a height of 20 feet, but is always a shrub with erect virgate branches. The cones may be shortly cylindrical, and the male amenta terminate the branchlets, but these have not been seen in a mature state.

*Casuarina lepidophloia*, F. v. M.

The species occurs abundantly on the gravelly plains between Coolgardie and Kalgoorlie. The prominent villous bracteoles easily distinguish it from *C. glauca* to which it is closely allied. It occurs as a tree of 20-35 feet with a reddish timber.

*Casuarina humilis*, Otto et Dietr.

A robust form of this species is common around the Stirling Range. The cones may attain a length of over 4 cm., the branches are much stouter and more erect than those of the typical form. The shrub seldom exceeds 4 feet in height.

*Casuarina grevillioides*, Diels.

The cones of this species have not been previously described: Fruiting cones sessile, either on the branches or the woody stock, solitary or densely clustered, ovoid, lateral, 4-merous, 1.8 cm. long and 1.5 cm. diameter. Bracts tomentose, triangular-cuneate, broad on the summit with a fine terminal point, convex and keeled. Bracteoles much protruding, obtuse, prominently keeled, minutely tuberculate, the dorsal protuberance small, triangular, shortly tomentose. Achenes light yellow, ovate, thick, smooth and glabrous, the wing rudimentary and triangular at the base of the black persistent protruding style, the whole achene enveloped in numerous golden-yellow hairs which arising from the base exceed it in length.

This interesting species was again collected on the summits of low stony hills, 1½ miles North-East of Mogumber among low shrubs, where Diels collected it in 1903.

*Casuarina decussata*, Benth.

I collected this species near the summit of Bluff Knoll, Stirling Range, at an altitude of over 3,000 feet. The trees at this altitude, although possessing a trunk of over fourteen inches in diameter, did not exceed ten feet in height.

## PROTEACEAE.

*Petrophila scabriuscula*, Meissn.

This species occurs near Tammin in arid sandy soil. It differs chiefly from *P. ericifolia* in its broader cone-scales.

*P. Serruriae*, R. Br.

An erect shrub of 2-4 feet, common in the declivities of the Stirling Range. The flowers are a pale yellow, and the small cones usually clustered into a terminal leafy spike. Fl. m. October-November.

*P. striata*, R. Br.

A rigid shrub of 2-3 feet with spreading intricate branches and a dark coloured bark. Flowers yellowish-white. Bracts reddish-brown, broadly ovate and obtuse.

Wagin, a common species occurring on gravelly hills in open forests of wandoo. Fl. m. October-November.

*Isopogon latifolius*, R. Br.

This conspicuous species extends to the summits of the highest peaks of the Stirling Range. Cones  $2\frac{1}{2}$  inches diameter, the flowers deep purple. The species occur in stony soil or rock crevices, flowering in October and November.

*I. buxifolius*, R. Br. var. *obovatus*, R. Br.

The species is a low spreading shrub of 2-3 feet. Flowers woolly-white.

Cranbrook, in arid sandy soil on plains, fl. m. March.

*I. scabriusculus*, Meissn.

A small rigid shrub of 1-2 feet with erect branches and leaves. Leaves pungently acute; flowers pink.

Yorkrakine, in yellow gravelly soil among other low shrubs, flowering August-September.

*Adenanthos cuneata*, Labill.

This species is at once conspicuous through the colour of its leaves, which are a silvery grey-green suffused with a dull purple-brown near the apex. Flowers red.

Common in the jarrah forests between Albany and the Stirling range, fl. m. December-January.

*A. Drummondii*, Meissn.

I found this handsome little species with bright scarlet flowers in flower at Mogumber early in January. Attains a height of 2 feet with erect leafy branches.

*Simsia simplex*, Lindl.

Stem subterranean. Flowers sulphur-yellow. The species extends eastwards to Bending, in arid sandy soil on open plains, flowering October and November.

*Conospermum amoenum*, Meissn.

An erect shrub of 1-2 feet in height, densely branched with erect branches, the stem simple at the base and expanded with a thick

swollen corky bark at the ground surface. Leaves linear-terete, but flattened slightly or grooved above. Flowers lavender-blue. Bending, a common plant in sandy gravelly soil among low shrubs, fl. m. October-November.

In my specimens the bracts are less than half as long as the perianth-tube.

*C. Brownii*, Meissn.

1-2 feet high, leafy only in the lower parts. Flowers white in dense terminal panicles, the young buds pale blue.

Kellerberrin and Bending, in sandy soil on open plains, fl. m. October-November.

*C. caeruleum* R. Br., var. *marginatum*, Benth.

Ludlow, in sandy soil in the jarrah forest, fl. m. August.

*C. densiflorum*, Lindl.

Stems spreading at the base, at length erect. Flowers white, the rhachises thickened and hirsute.

Moore River, Mogumber, in gravelly soil in the Wandoo forest, fl. m. December.

*Conospermum Dorrienii*, Domin.

A shrub of 3 feet with erect leafy branches, growing on the stony slopes of Warrungup Hill, Stirling Range. Fl. m. October (Mrs. T. Pelloe).

*Conospermum Eatoniae*, E. Pritzel.

This species was collected on the sandplain near Tammin, in arid sandy soil, fl. m. August-September.

My specimen differs from those of E. Pritzel only in being a decumbent shrub with flexuose-divaricate branches, whereas the type is given as an erect shrub. Fl. pale blue.

*C. flexuosum*, R. Br.

Common in the tuart forest around the Capel and Ludlow Rivers, in sandy loam, fl. m. August.

*Franklandia fucifolia*, R. Br.

An inhabitant of the sandy plains around the Stirling Range northwards to Tambellup and westwards to the Bow River. Flowers pale yellow, spotted with red. Fl. m. April-July.

*Persoonia Saundersiana*, Kipp.

A shrub or small tree of 10-18 feet with erect virgate branches; bark ash-grey, smooth; timber soft and white. Flowers lemon-yellow.

Tammin, in yellow sandy soil on yellow gravelly soil on plains fl. m. September. Also near Wyalcatchem.

*P. striata*, R. Br.

A perfectly glabrous shrub of 3-4 feet of spreading habit with rigid wiry branches. Leaves spirally twisted. Flowers yellow, anther-appendages not very long.

Westonia, in yellow sandy gravelly soil in thickets. Fl. m. November; Bungulla, in similar situation.

*P. quinquenervis*, Hook.

Leaves erect, rigid, the veins anastomosing. Flowers yellow. A common shrub in the York district, known as "Kauberry."

*P. longifolia*, R. Br.

A tree of 10-20 feet. Trunk to 8 feet and 8 ins. diameter, bark purple, flaky; timber red. Flowers yellow. Fruits purple when ripe. The common "Native Plum." Fl. m. November-December.

*Xylomelum occidentale*, R. Br.

"Native Pear." A tree attaining 25 feet, with a dark grey fibrous stringy bark. Timber dark brown, beautifully grained. Flowers sulphur-yellow, or yellowish-white. Bracts densely tomentose, not persisting until the flower opens. Style shorter than the perianth, slender, the style-end club-shaped, 5-furrowed.

Keysbrook to Bunbury and Collie, flowering in January. Fruit 3-6 ins. long, closely ferruginous-tomentose.

*X. angustifolium*, Kipp.

"Sand-plain Pear." A shrub of 10-15 feet with a short stout trunk of 2-3 feet in height, and numerous erect or spreading branches. Timber pale, soft; bark light grey. Leaves light green, tapering and uncinatate. Fruits much smaller than in *X. occidentale*, not falcate.

Watheroo, in sandy soil, with *Jacksonia eremodendron*. Yorkrakine and Kellerberrin, in sandy soil on open plains. Fl. m. January.

*Lambertia inermis*, R. Br.

Albany to Broome Hill, in arid sandy soil; a shrub of 10-20 feet. Flowers red or yellow. "Wild Honeysuckle."

*L. ericifolia*, R. Br.

A shrub of 10-20 feet with slender virgate branches. Fl. orange-red. Confined to the Stirling Range and eastwards to Bremer Bay. Fl. m. April-May.

*L. ilicifolia*, Hooker.

Gravelly thickets around Wagin, Fl. m. September.

Follicle ovate,  $\frac{3}{4}$  in. long, armed with stout tubercular spines, with a prominent terminal horn to each valve.

*Grevillea pectinata*, R. Br.

A low spreading shrub of 12-20ins. in height, spreading to a diameter of 3 feet, the branches rigid. Leaves (in my specimens) all with 7 segments, almost pungent. Flowers crimson-red. Ovary-stipes long and slender.

Wagin, in gravelly soil. Fl. m. October-November.

*G. Thelemanniana*, Endl.

A much branched shrub of 2-3 feet. Flowers bright scarlet. Common on the coastal limestone near Fremantle. Fl. m. Sept.

*G. Hookeriana*, Meissn.

A pyramidal shrub of 4-12 feet with horizontally spreading short branches. Adult leaves silvery-sericeous with a short pubescence, or nearly glabrous. Flowers orange-scarlet. Perianth-tube not 3 lines long. Ovary shortly, but distinctly stipitate. Fruit ovate-acuminate, more than 1 inch long.

Bendering, in arid sandy soil, extending to Harrismith, on open plains. Fl. m. October-November.

*G. Pritzelii*, Diels.

A low, dense, spreading shrub with rigid branches, 4-5 feet high.

Dowerin, Wyalcatchem, Yorkrakine and Kellerberrin, in yellow sandy soil among other dense shrubs. Fl. m. October-November.

*G. pterosperma*, F. v. M.

A pyramidal shrub or small tree of 10-15 feet with horizontal branches. Racemes dense, flowers white.

Yorkrakine, in yellow sandy soil. Fl. October-November. Also at Carrabin in similar situation.

*G. eriostachya*, Lindl.

Mogumber and Watheroo, in sandy soil among low shrubs. Fl. m. December-January.

Six-ten feet high, stems erect, racemes erect; the flowers lemon-yellow.

*G. excelsior*, Diels.

A shrub or small tree pyramidal in shape, 8-16 feet high, with horizontally spreading branches. Flowers golden-yellow, in dense, usually spreading racemes. Timber soft and pale.

Tammin, Yorkrakine, Wyalcatchem, Bencubbin, Westonia and Coolgardie, in yellow sandy soil on plains. Fl. m. October-November.

This inland eremaeian species differs from *G. eriostachya*, according to Diels, in habit, shorter racemes and fruit, and the leaves on the rhachis. My specimens show that the racemes are variable in length with regard to both species. I can find little or no difference in the fruit, and therefore the differences are reduced to habit and

rhachis. The rhachis of *G. excelsior*, however, possesses no leaves; the leaves are at the summit of the branchlets, and the racemes are terminal. The difference in habit therefore appears to be the only constant feature.

*G. bipinnatifida*, R. Br.

This handsome species is common in the granites of the Darling Range. Fl. m. June-October, or more or less throughout the year. Its large glaucous leaves and large dull red flowers render it a conspicuous species.

*G. Wilsoni*, A. Cunn.

A bushy shrub of 2-4 feet with erect branches. Fl. crimson. Perth to Waroona, common in gravelly soil at the foot of the Darling Range. Fl. m. September-October.

*G. Brownii*, Meissn.

A straggling shrub of 1-3 feet. Flowers dull red. Gravelly hills, Porongorup Range. Fl. m. March.

*G. fasciculata*, R. Br.

A small erect shrub of 1-2 feet. Flowers dull red. Stirling Range, in stony soil at the foot of Toolbrunup. April, 1923 (in full flower).

*G. haplantha*, F. v. M.

A small shrub of 1-3 feet densely branched with erect branches. Leaves erect, glaucous, minutely silvery-pubescent, even when old. Flowers orange-red.

Yorkrakine, in yellow sandy soil in thickets. Fl. June-August.

*G. acauria*, F. v. M.

Quite glabrous except the flowers. A small wiry spreading shrub of 3-4 feet. Flowers crimson, glabrous without.

Kununoppin, Nungarin and Yorkakine, in loamy soil in open forests of Salmon Gum (*Eucalyptus salmonophloia*). Fl. m. June-August.

*G. quercifolia*, R. Br.

A trailing or prostrate shrub with weak ascending branches. Flowers pink-purple. Fruit ovoid, about  $\frac{1}{2}$  inch long, thickly beset with acute tubercles, the style persisting and broadened into an acuminate appendage.

Gravelly soil, Armadale, Waroona and Collie. Fl. m. September-October; fruiting in January.

*G. Huegelii*, Meissn, var. *simplicifolia*, F. v. M.

A stout shrub of 8-15 feet with rigid erect branches. Bark fibrous, dull grey, the branchlets brown and shining. Flowers scarlet.

Laverton, in gravelly soil, in open spaces. Fl. m. September-November. Also near Kalgoorlie.

*G. occidentalis*, R. Br.

A small bushy shrub of 1-2 feet in height. Flowers yellowish-white. Armadale, in clay soil. Fl. m. October.

*G. oxystigma*, Meissn.

A dense bushy shrub of 2-3 feet with erect branches. Flowers white.

Mogumber, in sandy gravelly soil, on the foothills of the Darling Range. Fl. m. July-August.

*G. uncinulata*, Diels.

1-2 feet high, with rigid erect or spreading branches. Leaves linear, with closely revolute margins, glabrous on both pages. Flowers yellowish-white. Fruit oblong-ovoid, pubescent.

Goomalling, in yellow gravelly soil. Fl. m. August. Tammin (where Dr. Pritzel collected it) in fruit m. October.

*G. Endlicheriana*, Meissn.

6-10 feet high, branching from the base with slender virgate branches, leafy only in the lower parts. Flowers pink or white.

Mogumber, Swan View, Red Hill and Darlington, in sandy loam among granite rocks. Fl. m. July-September.

*G. Manglesioides*, Meissn.

A bushy shrub of 6-15 feet. Flowers white.

Ludlow River and Vasse River, Busselton, in sandy soil along the banks of watercourses. Fl. m. July.

*G. diversifolia*, Meissn.

Helena River, Midland Junction. A shrub of 10-20 feet with willow-like flexuose branches.

*G. eryngioides*, Benth.

Branches ascending or erect, 1-3 feet high, leafy only in the lower portions, the leaves large and glaucous blue in colour. Bracts yellow-green. Flowers yellow, suffused with purple. Fruits ovoid, flattened, viscid, 5 lines diameter, brown.

Carrabin, in arid sandy soil on open plains, Westonia, Kellerberrin and Bending, in similar situations. Fl. m. November.

*G. crithmifolia*, R. Br.

King's Park, Perth. A bushy shrub of 2-6 feet densely branched with erect branches. Flowers white. Fl. m. August-October.

*G. synapheae*, R. Br.

Branches trailing for several feet, or ascending. Flowers pale yellow. Moore River, Mogumber, in gravelly soil. Fl. m. July.

*G. didymobotrya*, Meissn.

This species, a shrub of 6-10 feet, erect with slender erect branches, inhabits the yellow sandy soil of the sand plains between Tammin and Coolgardie, flowering in October and November.



*G. nematophylla*, F. v. M.

A small tree of 10-25 feet with a trunk of 4-6 ins. diameter. Bark dark grey, longitudinally fissured. Timber pale red. Flowers white or pink. Fruits ovoid, compressed, about  $\frac{1}{2}$  in. long.

"Water Bush" of the Eastern Goldfields, extending from Norseman to Coolgardie and Menzies, in sandy gravelly soil in open places. Fl. m. December-January.

*G. Purdieana*, Diels.

Bencubbin, in arid sandy soil, a small tree. Fl. m. October.

*G. paradoxa*, F. v. M.

A shrub of 4-8 feet, with erect branches, densely bushy. Leaves pungently acute. Flowers deep pink.

Tammin, Wyalcatchem, Mount Marshall, Yorkrakine, Coolgardie, and Westonia, in yellow sandy gravelly soil usually in thickets of *Melaleuca* and *Casuarina*. Fl. m. August-October.

*G. petrophiloides*, Meissn.

A shrub of 5-8 feet, the branches spreading, at length erect. Flowers rose-pink, the limb of the perianth and stigmatic cone pale green.

This handsome species occurs between Goomalling, Tammin and Nungarin, in yellow gravelly soil usually in thickets with *G. paradoxa*, F. v. M.

*G. apiciloba*, F. v. M.

This species, which undoubtedly has its affinity in *G. Pritzelii*, Diels, is a characteristic shrub in the yellow sandy gravelly thickets around Carrabin. Fl. m. October.

*G. integrifolia*, Meissn, var. *incurva*, Diels.

An erect wiry shrub of 4-12 feet, the branches and leaves densely sericeous with a close pubescence. Bark of the lower branches and stem light brown, smooth and shining. Flowers light yellow.

Tammin and Kellerberrin, in arid sandy soil. Fl. m. October-November.

*G. ornithopoda*, Meissn.

A willow-like shrub of 10-15 feet. Bark green and thin. Flowers white. Helena River, Mundaring Weir, on the banks of the river, forming dense thickets. Also at Jarrahdale, in similar situation. Fl. m. June-July.

*G. amplexans*, F. v. M.

Naraling, near Geraldton (A. M. Dillon).

*Hakea Cunninghamii*, R. Br.

Beria, in sandy loam, in low-lying places in the mulga bush. Leaves light green, rigid, 8-11 ins. long. Flowers sulphur-yellow, the styles crimson.

*Hakea cyclocarpa*, Lindl.

This common species rarely seen in flower occurs between Armadale and Collie, a small shrub of 4-6 feet, in gravelly soil, known under the name of "Wild Bean."

*H. crassifolia*, Meissn.

A tall shrub attaining a height of 20 feet or more. Branches rigid and erect. Flowers yellow.

Sandplains around the Stirling Range, fl. m. October-November.

*H. Brownii*, Meissn.

A small dense widely branched shrub of 4-8 feet.

Wagin, in sandy gravelly soil; Warrungup Hill, in sandy stony soil.

*H. eriantha*, R. Br.

What appears to be this species was collected at Pemberton. The fruits, however, are absent. A shrub of 15 feet with slender branches. Flowers white, the styles dark-coloured.

The leaves and flowers agree very closely with the description given.

This species has not been previously recorded from Western Australia.

*H. trifurcata*, R. Br.

Thus bushy species, a shrub of 4-8 feet, is easily recognised by reason of its leaves, which are of two types; linear-terete, divided into slender segments, and flat pale green ovate concave leaves, usually on the older branches. The flowers are white.

The species is common in the Darling Range, extending to the South-West districts and Narrogin. Fl. m. August-September.

*H. platysperma*, Hook.

A low rigid shrub of 3-5 feet with spreading branches. Flowers yellow.

Wyalkatchem, North Kellerberrin, and Tammin, in arid sandy soil, fl. m. August.

*H. Preissii*, Meissn.

A shrub or tree of 10-25 feet with a trunk of up to 10 ins. diameter. Flowers greenish-yellow. Typical of swampy clay flats along the Great Southern Railway, and on the coastal plain between Perth and Busselton, known as "Needle tree." Fl. m. November-December.

*H. amplexicaulis*, R. Br.

Darling Range between Darlington and Collie, a small straggling shrub of 4-8 feet with a yellowish bark. Of the habit of *H. glabella*, it can be easily distinguished by its longer smooth fruits.

*H. glabella*, R. Br.

"Prickly Pear." Usually a shrub or small tree of 12-20 feet, with a rough grey persistent bark. Flowers white, sweetly scented. Common along the Great Southern Railway, in the wandoo (*Eucalyptus redunca*, var. *elata*) forest, in sandy loam, fl. m. August-October.

The species along the coastal plain is seldom above 10 feet high. Here it is typically a low spreading shrub.

*H. Pritzelii*, Diels.

A low trailing shrub. Warrungup Hill, Stirling Range, in fruit m. April.

*H. cristata*, R. Br.

Red Hill, Darlington and Mundaring Weir, fl. m. June.

Appears to be confined to this district.

*H. linearis*, R. Br.

Albany district, fl. m. April. Cannington, in sandy soil, fl. m. October.

*H. ruscifolia*, Labill.

A compact shrub of 5-7 feet with erect leafy branches. Lower leaves to 2½ ins. long, all sessile, even to the young shoots.

Mundijong, in sandy gravelly soil, in open forests of *Eucalyptus marginata*, fl. m. January-March.

*H. recurva*, Meissn.

A shrub or small tree of 10-20 feet with spreading branches. Young shoots and scales of the involucre, minutely pubescent. Leaves to 5 inches long, rigid and glaucous. Flowers greenish-yellow, strongly and sweetly scented.

Yorkrakine, and Kellerberrin, in granite soil, among thickets of *Acacia acuminata* and *Eucalyptus loxophleba*, fl. m. August.

*H. multilineata*, Meissn.

A small tree of 10-20 feet, with a thick trunk, rough dark grey bark and reddish timber. Adult leaves quite glabrous, with dark-coloured tips. Racemes up to 6 inches long, the flowers either light yellow or deep pink.

Wyalkatchem, Tammin, Yorkrakine, Bungulla, Carrabin and Southern Cross, in yellow sandy soil in thickets, fl. m. August-September.

A narrow-leaved form, with leaves 4-6 inches long, but under ¼ inch wide, occurs at Coolgardie and Westonia. The racemes are much smaller and shorter, and the flowers white. The habit is that of the typical form.

*H. laurina*, R. Br.

Tambellup, Stirling Range and eastwards to Esperance. A shrub or small tree of 10-25 feet. Perianth red, the style yellowish-white. Fl. m. April-June.

*H. cucullata*, R. Br.

Stirling Range and Kalgan Plains, fruiting m. March.

The species appears to be confined to the sand plains around the Stirling Range, and the coastal plain to the east. Drummond's locality of "towards Swan River" is misleading.

*H. myrtoides*, Meissn.

Mogumber and Victoria Plains. Flowers deep pink. A shrub common on the granite hills of the Darling Range in the vicinity of the Moore River, fl. m. July.

*H. florida*, R. Br.

A densely branched shrub of 4-6 feet with pungently lobed leaves. Near the summit of Mount Toolbrunup, Stirling Range, in scanty soil among shales, fruiting m. April.

*H. varia*, R. Br.

Attains the proportions of a small tree 10-18 feet high. Flowers white. Common in the Vasse district, in swampy sandy places, fl. m. July.

*H. sulcata*, R. Br., var. *scoparia*, Benth.

A shrub of 3-6 feet with rigid erect branches. Flowers varying from almost white to pink and purple.

Yellow sandy soil in thickets, Goomalling, Dowering, Wyal-katchem and Nungarin, fl. m. July-August.

*H. Lehmanniana*, Meissn.

Flowers pale blue. Gnowangerup and Wagin, fl. m. June-August.

*H. lissocarpa*, R. Br.

3-6 feet high, densely and intricately branched. Flowers white, heavily scented. Kellerberrin and Yorkrakine, in sandy loam with *Acacia acuminata*, fl. m. August-September. "Honey bush."

*H. bipinnatifida*, R. Br.

Flowers white, suffused with pink. A common shrub in the vicinity of the Swan River, extending over the Darling Range.

*Banksia Meissneri*, Lehm.

Spikes cylindrical, 1 inch long, flowers yellow.

Collie River, Muja, in sandy swampy soil, fl. m. April.

*B. occidentalis*, R. Br.

A shrub of 6-15 feet, flowers deep scarlet. Swampy places around Albany, fl. February-March.

*B. littoralis*, R. Br.

Extends to the Moore River, flowers yellow.

*B. verticillata*, R. Br.

A tree of 50-60 feet with a diameter of 20-30 inches. Flowers yellow. An inhabitant of the banks of streams in the South-West between the Collie and Kalgan Rivers. Fl. m. October-January.

*B. Brownii*, Baxter.

I collected this handsome species on the summit of Bluff Knoll in scanty stony soil at an altitude of 3,640 feet. Flowers golden-orange. Here it is a small spreading shrub of 2-4 feet, fl. m. April-May.

*B. attenuata*, R. Br.

An inhabitant of poor sandy soil.

Watheroo, in arid sandy soil with *Jacksonia eremodendron*, fl. m. January.

*B. Solandri*, R. Br.

Flowers dull purple. Warrungup Hill and Toolbrunup, Stirling Range, in sandy stony soil, fl. m. October.

*B. prostrata*, R. Br.

Stems trailing for several feet. Spikes erect, but lying in the soil, orange-red.

Kalgan Plains, and declivities of the Stirling Range, fl. October-April.

*B. quercifolia*, R. Br.

Flowers scarlet. Sandy swampy places around King George's Sound.

*B. marginta*, Cav.

Nornalup Inlet, in humid valleys, fl. m. April.

*B. coccinea*, R. Br.

Common throughout the Stirling Range, fl. m. October.

*B. prionotes*, Lindl.

A shrub to a tree of 25 feet with a stout trunk and white bark. Extends eastwards to the Tammin Sandplain. It is also fairly common in King's Park, Perth, fl. m. April-May. Flowers orange-yellow, the buds woolly-white.

*Hannafordia Kesselli*, n. sp.

A small bushy shrub of 2-3½ feet with erect leafy branches, clothed throughout with a dense ferruginous tomentum, which is densest on the underside of the leaves, young shoots and calyces, that of the branches being closer and shorter. Leaves lanceolate, cordate at the base, tapering towards the apex but obtuse, quite entire, flat and thick, stellate tomentose above with a prominent midrib, more ferruginous-tomentose underneath where the veins are more prominent. Peduncles short and thick, leaf-opposed, bearing

two flowers on short pedicels. Bracts none. Bracteoles usually two, close to the calyx, but distinct from it. Calyx campanulate, divided to over two-thirds of its length into narrow-lanceolate acuminate lobes, densely stellate-tomentose and brownish without, glabrous and light green within. Petals oblong, with a concave base, the lamina concave, green, striated with purple lines, the ligula almost linear and recurved. Staminal-tube deeply divided into 12-15 narrow-linear glabrous filaments, the tube dilated at the base and exceeding the ovary in length. Stamens concealed within the petals, the short filaments attached to the ring of staminodes, near the base of the cup, erect, bearing ovoid-oblong anthers with parallel cells opening outwards, the connective much thickened. Ovary globular or ovoid-globular, sessile thickly beset with stellate hairs, the style simple, short, glabrous and slightly curved, the stigma clavate. Capsule ovoid-globular partially enclosed within the persistent base of the calyx, woody, densely clothed with a thick brown stellate tomentum which wears off with age, the valves acute and splitting down the axis. Seeds glabrous, smooth and brown.

Shrub of 1-1.5 metres in height. Leaves 3.5-4 cm. long, and 1.7 cm. wide; petiole 8 mm. long. Peduncle 3 mm. long, pedicels 1.5 mm. long. Calyx 1.5 cm. long and 6 mm. diameter at the base, the lobes about 1 cm. long. Petals 4 mm. long, the base 1.5 mm. wide. Filaments .5 mm. long; staminal cup 6 mm. long, including the length of the staminodes; style 2 mm. long. Capsule 1 cm. long, 6 mm. diameter.

Bendering, W.A., in thickets of *Casuarina Huegeliana* and *Acacia acuminata*, in yellow sandy soil, fl. February-June, fruiting m. November. (5th February, 1923, C.A.G.)

The Type is No. 1923 of the Forests Department Herbarium.

The new species is dedicated to Mr. S. L. Kessell, Conservator of Forests in Western Australia. Its affinity lies in *H. Bissillii*, F. v. M., from which it differs in the longer petiole, smaller calyx, much smaller and differently shaped petals, longer and equal staminodia.

The arrangement of the staminodia is quite different to that of the other known species.

*Hypocalymma punicea*, n. sp.

An erect slender shrub of 3-5 feet with loose branches, the whole plant glabrous. Branches leafy only at or near the ends. Leaves linear-triquetrous, with a minute recurved point (uncinate) covered with minute oil-glands. Flowers deep pink, large, the petals spreading, solitary on the leafy branchlets on exceedingly short slender pedicels. Bracts none. Bracteole small linear-lanceolate at the base of the calyx. Calyx-tube broad and almost flat, the lobes

orbicular, pink with white scarious margins. Petals orbicular on a slender claw. Stamens numerous in a single row. Ovary superior, attached by the broad base, depressed globular but slightly ridged at the summit, 2-celled with two ovules in each cell, the style slender, glabrous, inserted in a central minute depression; stigma small capitate, yellow.

Plant 1-1.75 metres high. Leaves 1-2.5 cm. long. Pedicels .5 mm. Calyx 3 mm. diameter, lobes 3 mm. long. Petals 8 mm. long.

Bendering, in yellow sandy soil among thickets of low dense shrubs, fl. m. February. (No. 1922, 5th Feb., 1923, C.A.G.)

The new species must be placed in the Section *Eucalymma* of Benthams on account of its 2-celled ovary. It differs from the other members of this section in the style being inserted in a central depression, and not continuous with the summit of the ovary. It has affinity to *H. longifolium* and *H. scariosum*, differing from the former in its solitary pedicellate flowers and shorter leaves, and from the latter in its solitary flowers, which are both pedicellate and larger, and from both in the style.

The Type is No. 1922 of the Forests Department Herbarium.

*Melaleuca arenaria*, n. sp.

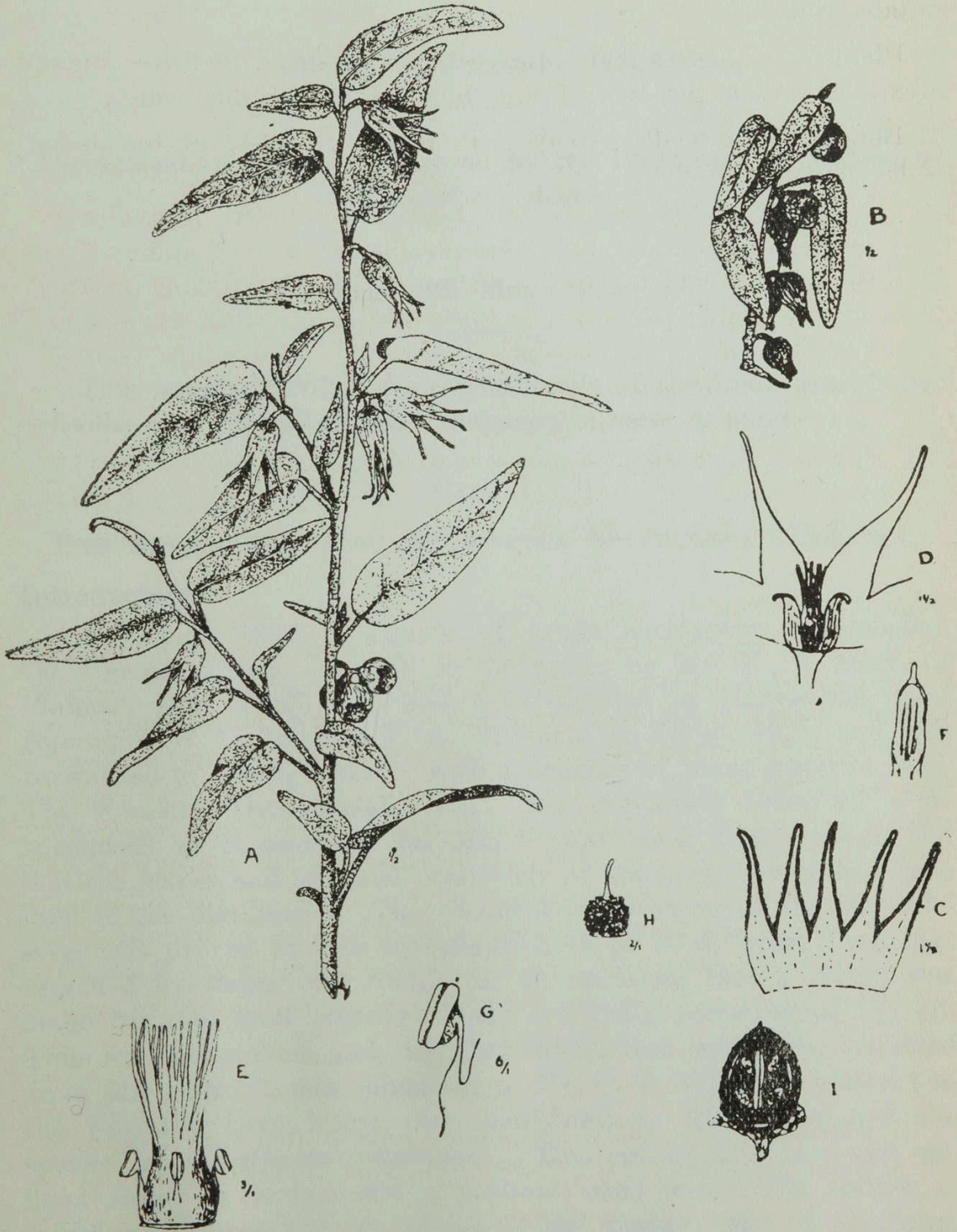
A rigid bushy shrub of 1-3 feet, glabrous except the flowers and the young shoots, which are minutely pubescent. Leaves alternate, obovate or almost orbicular when small, obtuse, narrowed into a short petiole, rigid, spreading, nerveless, or very obscurely one-nerved. Flowers pink, in terminal globular clusters, the rhachis growing out after flowering, few together in a dense head, the rhachis and calyx villous. Calyx-tube campanulate, densely villous in the lower part, the lobes scarious and orbicular. Petals orbicular, scarious, early deciduous. Stamens shortly united in bundles of 3 or 4. Ovules not numerous. Fruiting calyx globular-urceolate, contracted at the top, smooth and flat at the orifice with a narrow rim.

Shrub of .3-1 metre in height. Leaves 3 mm. long and 2 mm. wide. Calyx-tube 2 mm. long. Staminal bundles 5.5 mm. long.

Bendering, in arid sandy soil among low stunted shrubs on open plains, fl. m. Oct.-Nov. (No. 1838, 28th Nov., 1922, C.A.G.)

The species comes nearest to *M. polycephala*, Benth., differing in the obtuse, much smaller leaves, the calyx-tube not membranous. From *M. spathulata*, Schau., it differs in the rhachis and calyces not being hirsute, and from both species in the fruits being arranged—not densely packed—in small heads of 2-6.

The Type is No. 1838 of the Forests Department Herbarium.



C A Gardner del.

*Hannafordia Kesselli*, Gardner.  
 A Habit. B Fruits. C Calyx (opened).  
 D Petals and Androecium. E Androecium. F Petal. G Stamen. H Ovary.  
 I Fruit in section.